Base Camp Life Cycle Management
ENSITE, VFOB, and BCD

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ERDC
Engineer Research and Development Center

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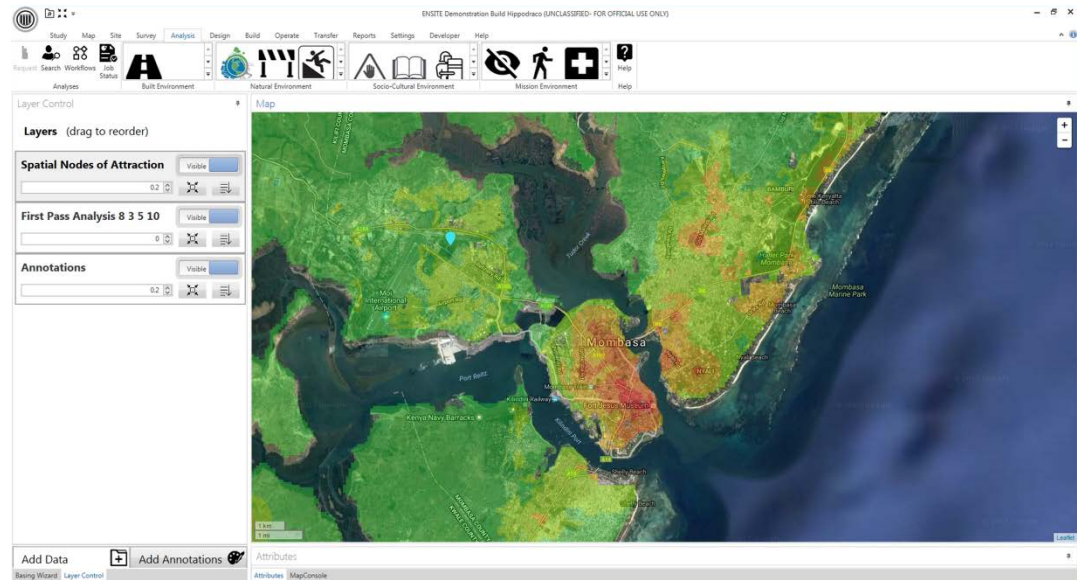*Innovative solutions for a safer, better world*

ENSITE – Engineer Site Identification for the Tactical Environment

Purpose

- Tool built to optimize site selection

- Uses best-available data from partners (NGA, AGC, UROC, ENFIRE)

- Enable analysis of potential or existing sites

Features

- Transitioning to Map Based Planning Services (MBPS)

- Mission details input (type, size, duration)

- First pass criteria fine tuning, red-green map generated for location fitness based off criteria

- Generation of site reports to enable further analysis, with recommendations about a specific selected site

- Layers to show various environmental factors (LoS, Barriers, Ports, Parks, Slopes, etc.)
    - User defined layers can be added to show existing structures and land use

How to access

- ENSITE is an R&D effort concluding in FY19

- ENSITE capabilities are available for demonstration through the USACE Reachback Operations Center (UROC)

Virtual Forward Operating Base (VFOB)
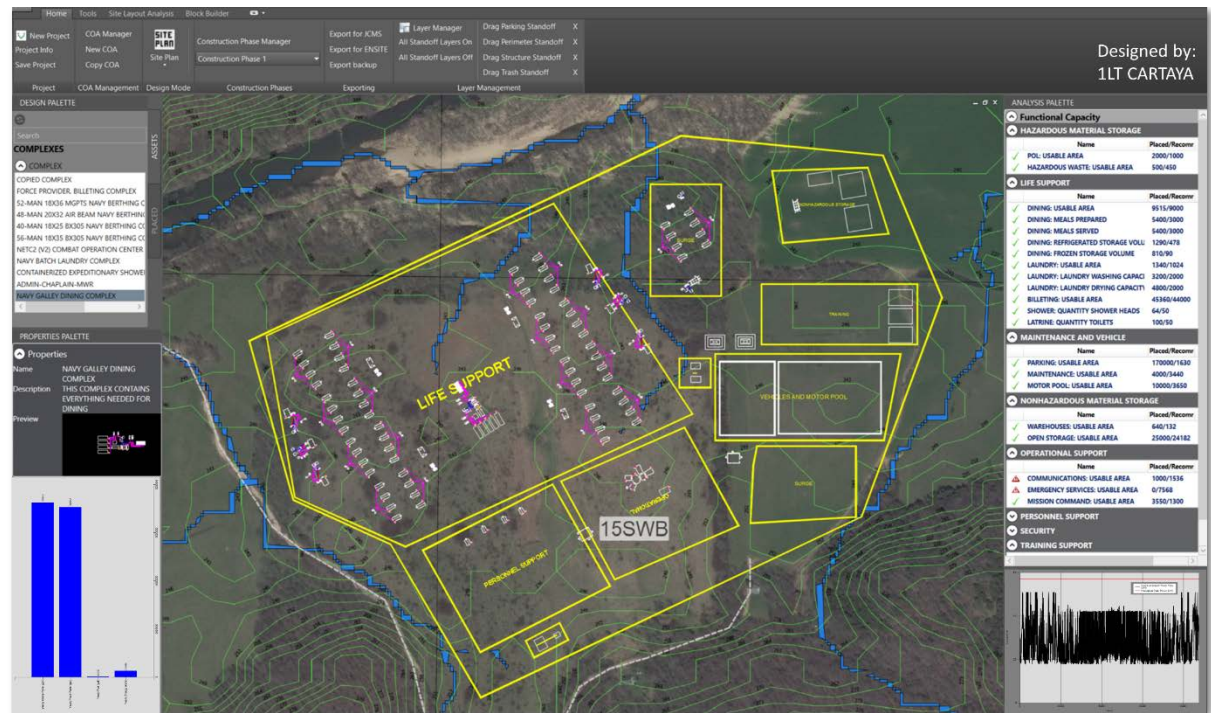## Master Planning and Analysis Tool

Layout and Design

- Built as a set of plugins for AutoCAD 2015 – no separate installation required
- Reconfigurable/scalable virtual representation of camp overlaid on properly scaled map layers
- Intuitive virtual environment to lay out a contingency location from scratch or from existing templates
- Interfaces with multiple contingency base data sources and toolsets
- $13M invested in current software, transitioning to Army Facilities Components System (AFCS)

Operational Analysis

- Requirements analysis for Force Projection, Sustainability, and Unit Readiness
- Simulated resource loads and Logistical Requirements using local weather for Fuel, Water, Power, Waste
- Peak Power Analysis
- Standoff distances
- Barrier damage assessment
- Risk management
- Construction phasing

Products

- Scaled and dimensioned blueprint
- Output to JCMS, ENSITE
- Analysis reports on multiple COAs
- Project export to other VFOB instances or a centralized database of designs

Army G-4 and OACSIM Proposal for Base Camp Life Cycle Mgmt

- Kimberly Morris at Contingency Basing Branch, Contingency Integration Division, DALO-OPS-C Operation Directorate Office of the Deputy Chief of Staff, G-4 initiated discussion with ERDC-CERL and others to integrate existing base camp life cycle management tools in May, 2018

- Jerry Harbison, Operations Research Analyst (Global Posture) in the Office of the Assistant Chief of Staff for Installation Management (ACSIM) connected G-4 integration effort for Contingency Locations with ACSIM modernization priorities of Enduring Locations

- ERDC-CERL performs R&D and currently executes reimbursable support efforts in both Contingency and Enduring topic areas, leveraging several applicable software tools

- Group is proposing a database concept that will enable extant tools to be interoperable, shifting the paradigm for Base Camp Life Cycle Management

- VFOB and JCMS bring critical Master Planning and Construction Management capabilities

Definitions of Existing Tools

- Map Based Planning Services (MBPS)
- System of Record
- Strategic-level map-based planning tool

ELEVATION: 100,000'

- Engineer Site Identification for the Tactical Environment (ENSITE)
- 6.2-level RDT&E project at ERDC-CERL. Funded through FY19
- Flexible GIS platform with map analysis. Base camp and airfield siting tool

ELEVATION: 10,000'

- Virtual Forward Operating Base (VFOB)
- Advanced Prototype is up to TRL 6
- Base camp master planning, layout, and analysis tool built on AutoCAD

ELEVATION: 1,000'

- Joint Construction Management System (JCMS)
- Program of Record - Army Facilities Components System (AFCS)
- Base camp construction requirements mgmt, repository of facilities
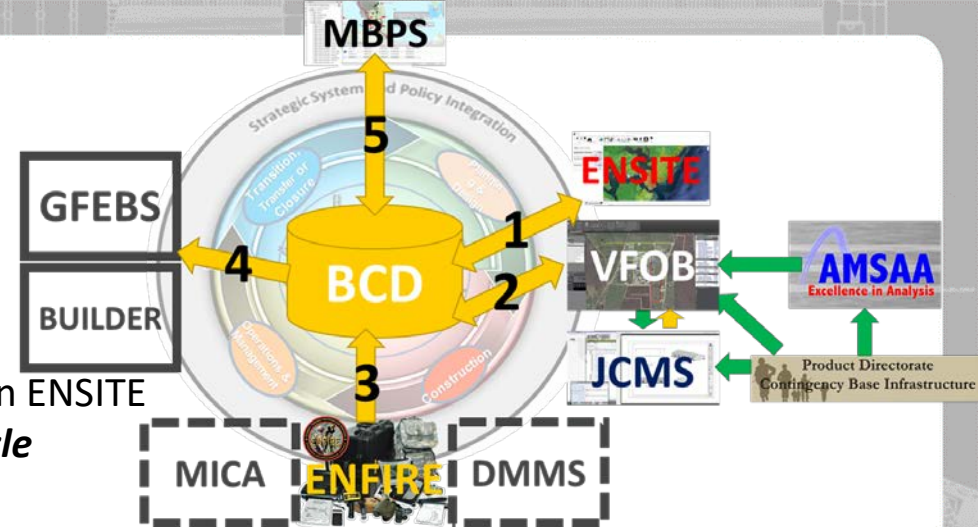
ELEVATION: 100'

- Instrument Set, Reconnaissance and Surveying (ENFIRE)
- Program of Record
- Hardware (computers and survey equipment) and software for GIS recon

ELEVATION: 10'

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Proposed Solution:
Base Camp Database (BCD)

1. ENSITE reads and writes to BCD
   - GIS site analysis written to DB
   - Camps can be viewed with attached data in ENSITE
   - ***Site data are maintained through Life Cycle***
2. VFOB reads and writes to BCD
   - ENSITE map data read from BCD including existing assets
   - As Master Plan is Built out, as-built info is written to DB
   - Precursor to Real Property management
   - ***VFOB has a living master plan that is kept up to date***
3. ENFIRE and other Mobile Data Collection write to BCD
   - Operational Energy data, Condition-based Maintenance
   - Real Property inventory, Facility Utilization Surveys
   - Survey and Recon for Construction (data flow through BCD to VFOB and ENSITE)
   - ***Operational Energy, Real Property, Site Survey Data can all be visualized***
4. GFEBS and BUILDER read from BCD
   - BCD contains fields needed to track assets in GFEBS and BUILDER
   - ***Data already in BCD for Contingency Location assets reduce cost of Real Property Mgmt***
5. MBPS reads data from BCD
   - (1), (2), and (3) are available for display at strategic planning level
   - ***MBPS has COMPLETE ENGINEERING PICTURE of base camp sites; Enables strategic decision-making in planning phase and efficient management of enduring assets***
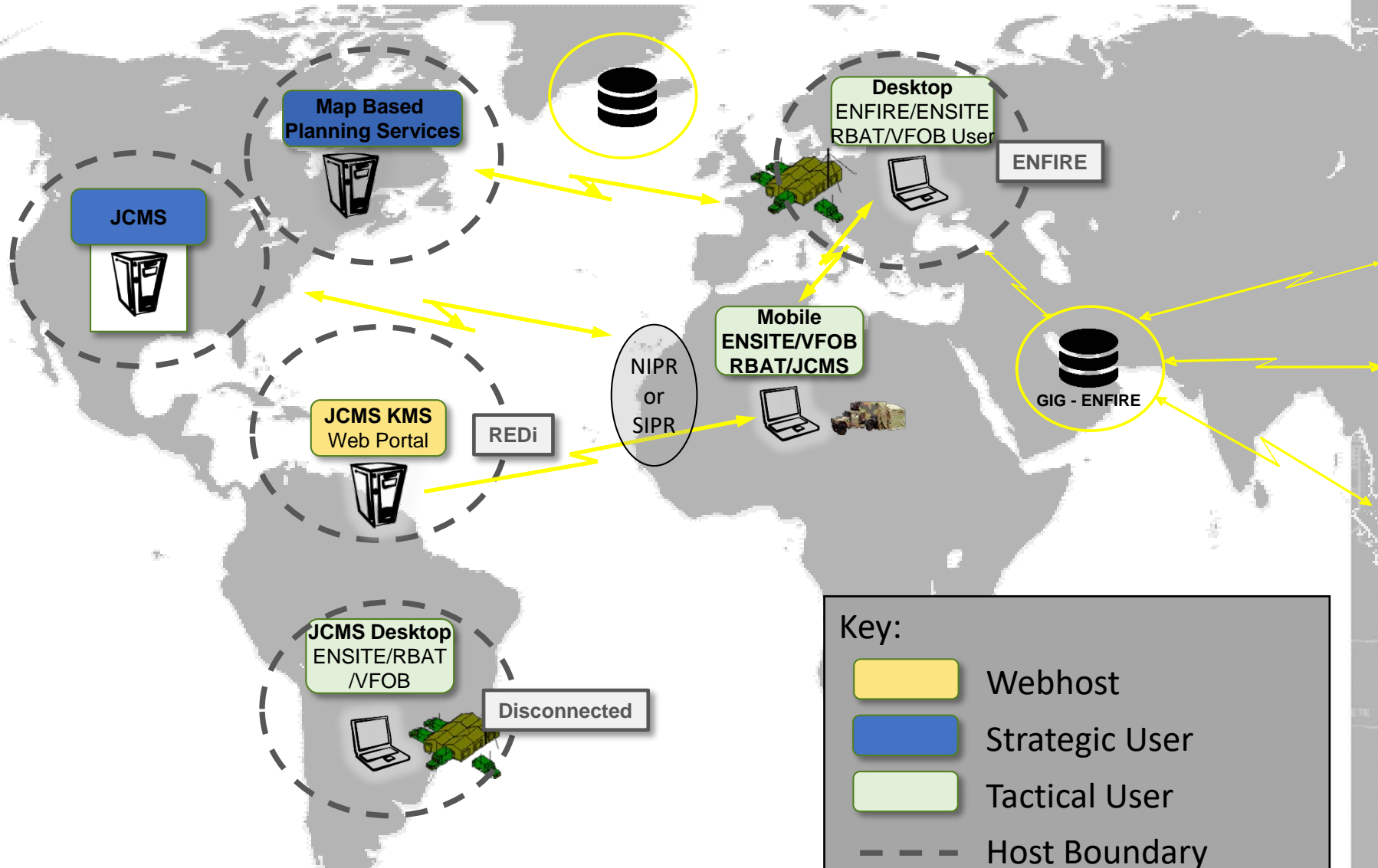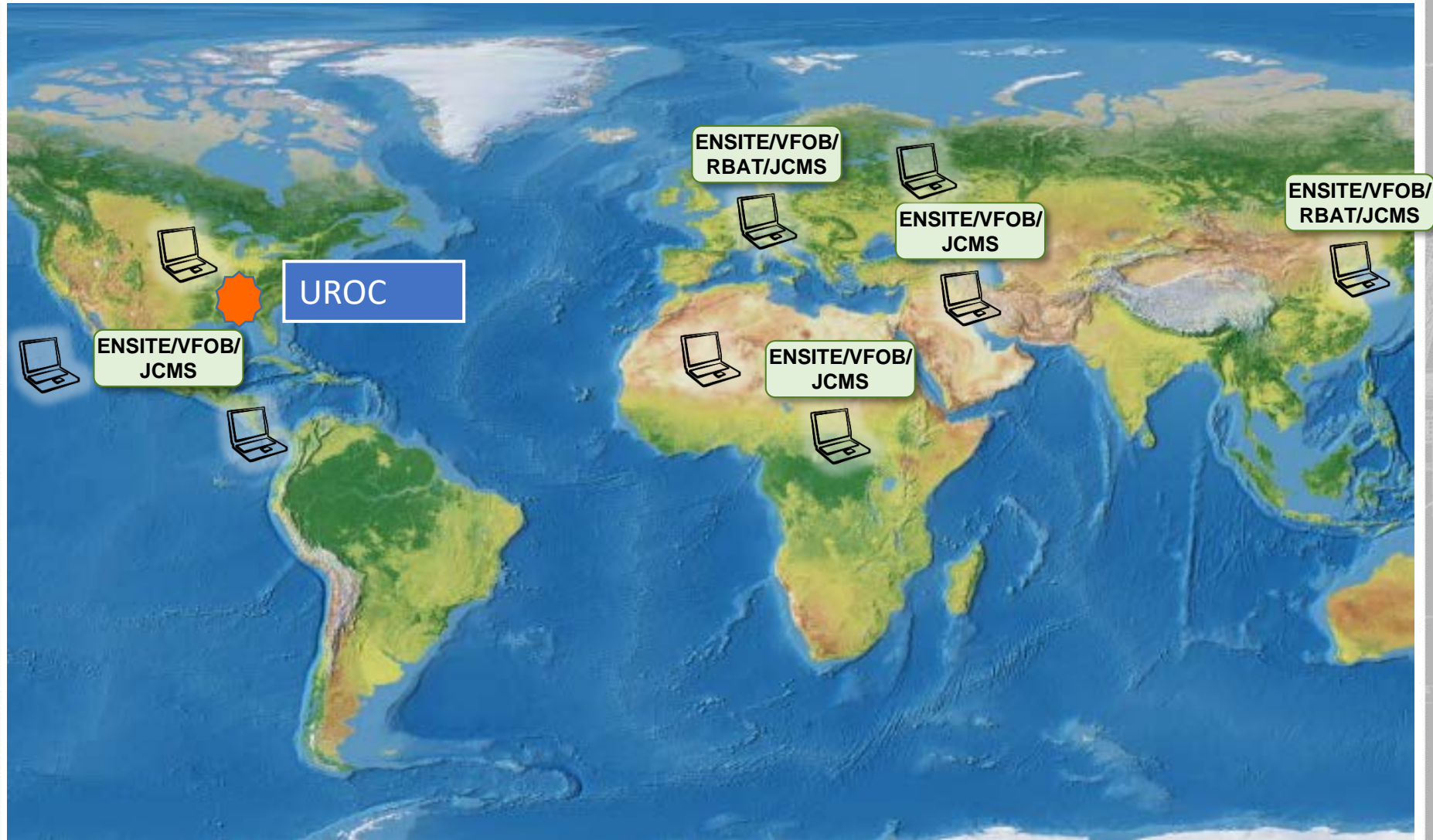
Transition Plan and Funding

- FY12 – FY19
  - ERDC invests ~$20M in base camp site analysis, master planning, and operational energy data

- FY18
  - CERL support to Fort Worth District (SWF) – Master Plan Updates and Real Property Inventory
  - CERL support to Task Force Essayons (TFE) – Master Planning and CENTCOM bases cost inventory
  - USACE Support to Kuwait Naval Base EXORD – Real Property Accounting tasks

- FY19
  - Army Study on Contingency Real Property Management (pending approval, $225K)
  - Continued CERL support to Fort Worth District and Task Force Essayons
  - R&D Funding for Pilot Build of BCD
  - R&D Funding supplemented by Pilot Contingency and Enduring Locations (e.g. ARCENT, USAREUR, USARAF) to populate the Pilot with Real Data

- FY20
  - Transition BCD as new program based on G-4's incoming Army Reg

Backup Slides

Operational Concept / OV-1

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Warfighter Support

ENSITE and VFOB Demo'ed at MSSPIX, April 2018
3 Soldiers, 7 hours, 4 Contingency Locations

TCL BLUE – CARTAYA

TCL HELLBENDER – CUMMINGS

TCL GOLD – GARBET

TCL PICARD – GARBET